



Genetics: LS 3.1

How Do Traits and the Environment Interact?

Think About the Question



Read: Read page 93 with your partner, and then answer the following question

- What are you going to investigate in this learning set?

STOP and discuss as a class

Read: As a class, read the Research Announcement from the RBWI on page 94.

- What is the RBWI asking you to investigate?



Read: Read the first paragraph on page 95.

- Write a definition for selection pressure in your own words.
- Wind is one example of a selection pressure that is put on rice plants. What is another type of selection pressure that may be put upon rice plants? Explain how it will affect the rice plant.

STOP and discuss as a class

Read the rest of page 95 as a class.

Analyze Your Results

With your group, read the last paragraph on page 97 and the *Calculating Frequencies* box on page 98.

1. Calculate the frequencies of traits.
 - A. Calculate the frequencies of each color chip in your *Initial Population* and record them in the part of the chart labeled *Initial Population*. Put a 10 in the first column. That was the number you began with.

- B. Calculate the frequencies of each color chip in the *Final Population*. Begin by recording the total number of chips you had at the end in the first column of the *Final Population* row of the chart. When you calculate the frequencies of these organisms, use this number when you divide.
2. Compare the frequency of traits in the initial population and in the final population.
- A. Which chip-color frequencies changed?
- B. What forced the frequencies to change?
3. Look at the number of chips you had of each color in the initial and final populations. Look at the frequencies of each color in the initial and final populations.
- A. What information do the frequencies give you that you cannot get from the numbers?
- B. Why do you think scientists calculate frequencies when they study populations
4. In this investigation, you were modeling a real-world situation.
- A. What were you doing when you removed a colored chip from your cup?
- B. What were you doing when you left a chip in the cup?
5. How accurate do you think your model and simulation are?

What other factors, in addition to selection pressure, might affect the frequencies of traits in a population?